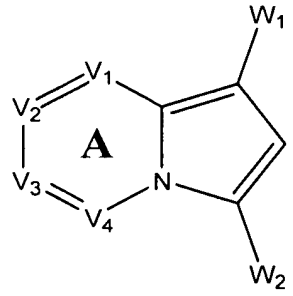
Amendments to the Claims

Please amend Claims 1, 4, 6-10, 13 and 25. The Claim Listing below will replace all prior versions of the claims in the application:

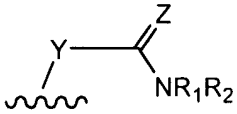
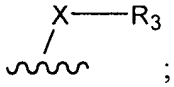
Claim Listing:

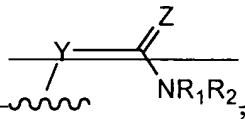
1. (Currently amended) A compound of Formula (I) or a pharmaceutically acceptable salt or prodrug thereof:



(I)

wherein:

one of W_1 and W_2 is  and the other is  ;

~~V_1, V_2, V_3 and V_4 are independently CR_6 or N; or alternatively, V_1 and V_2 taken together or V_3 and V_4 taken together may be replaced with S, O, or NR_7 to form a fused 5-membered heterocyclic ring~~ V_1, V_2 and V_3 are independently CR_6, and V_4 is N, and wherein two adjacent positions on Ring **A** may optionally be joined to create a fused aryl group  ~~, provided that when W_1 is , V_1, V_2, V_3 and V_4 may not all be CR_6~~;

X is a covalent bond, $-C(R_4R_5)-$, $-N(R_4)-$, -O-, -S-, -S(O)-, $-S(O)_2-$, -C(=O)-, $-C(=O)-N(R_4)-$, or $-N(R_4)-C(=O)-$;

Y is $-C(R_4R_5)-$, $-N(R_4)-$, -O-, -S-, -S(O)-, $-S(O)_2-$, -C(=O)-, -C(=S)-, $-C(=O)-N(R_4)-$, $-C(=N-OR_8)-$, $-C(=N-R_8)-$, or $-N(R_4)-C(=O)-$;

Z is =O, =S, $=N-OR_8$ or $=NR_8$;

R_1 and R_2 are independently -H, an unsubstituted aliphatic group, a substituted aliphatic group, an unsubstituted non-aromatic heterocylic group, a substituted non-aromatic heterocylic group, an unsubstituted aryl group or a substituted aryl group, or alternatively, NR_1R_2, taken together, is a substituted or unsubstituted non-aromatic nitrogen-containing heterocyclic group or a substituted or unsubstituted nitrogen-containing heteroaryl group;

R_3 is a substituted or unsubstituted aryl group or a substituted or unsubstituted aliphatic group;

each R_4 and R_5 is independently -H or a substituted or unsubstituted aliphatic group;

each R_6 is independently –H or a substituent for a Ring **A** carbon atom ~~substituent~~;

~~each R_7 is independently -H or a heteroaryl ring nitrogen substituent; and~~

each R_8 is independently –H, an unsubstituted aliphatic group, a substituted aliphatic group, an unsubstituted non-aromatic heterocylic group, a substituted non-aromatic heterocylic group, an unsubstituted aryl group, or a substituted aryl group;

substituents for Ring A, aliphatic, non-aromatic heterocyclic or aryl carbon atoms are independently selected from the group consisting of -OH, halogen, $-OR^a$, $-O-COR^a$, $-COR^a$, -CN, $-NO_2$, -COOH, $-SO_3H$, $-NH_2$, $-NHR^a$, $-N(R^aR^b)$, $-COOR^a$, -CHO, $-CONH_2$, $-CONHR^a$, $-CON(R^aR^b)$, $-NHCOR^a$, $-NRCOR^a$, $-NHCONH_2$, $-NHCONR^aH$, $-NHCON(R^aR^b)$, $-NR^cCONH_2$, $-NR^cCONR^aH$, $-NR^cCON(R^aR^b)$, $-C(=NH)-NH_2$, $-C(=NH)-NHR^a$, $-C(=NH)-N(R^aR^b)$, $-C(=NR^c)-NH_2$, $-C(=NR^c)-NHR^a$, $-C(=NR^c)-N(R^aR^b)$, $-NH-C(=NH)-NH_2$, $-NH-C(=NH)-NHR^a$, $-NH-C(=NH)-N(R^aR^b)$, $-NH-C(=NR^c)-NH_2$, $-NH-C(=NR^c)-NHR^a$, $-NH-C(=NR^c)-N(R^aR^b)$, $-NR^dH-C(=NH)-NH_2$, $-NR^d-C(=NH)-NHR^a$, $-NR^d-C(=NH)-N(R^aR^b)$, $-NR^d-C(=NR^c)-NH_2$, $-NR^d-C(=NR^c)-NHR^a$, $-NR^d-C(=NR^c)-N(R^aR^b)$, $-NHNH_2$, $-NHNHR^a$, $-NHR^aR^b$, $-SO_2NH_2$, $-SO_2NHR^a$, $-SO_2NR^aR^b$, $-CH=CHR^a$, $-CH=CR^aR^b$, $-CR^c=CR^aR^b$, $-CR^c=CHR^a$, $-CR^c=CR^aR^b$, $-CCR^a$, -SH, SR^a, $-SO_kR^a$ and $-NH-C(=NH)-NH_2$;

k is 0, 1 or 2;

R^a-R^d are each independently an aliphatic, benzyl or aryl group, or -NR^aR^d, taken together, forms a non-aromatic heterocyclic group;

substituents for nitrogen atoms on Ring **A** are selected from the group consisting of aryl, -C_1-C_4 alkyl, -C_1-C_4 alkoxycarbonyl, -C_1-C_4 haloalkyl, -C_1-C_4 haloalkoxycarbonyl, -C_1-C_4 acyl and substituted amino;

substituents for heteroaryl ring nitrogen atoms having three covalent bonds to other heteroaryl ring atoms are selected from the group consisting of -OH and alkoxy; and

substituents for heteroaryl ring nitrogen atoms having two covalent bonds to other heteroaryl ring atoms are selected from the group consisting of substituted or unsubstituted alkyl, substituted or unsubstituted phenyl, -$S(O)_2$-(alkyl), -$S(O)_2$-NH(alkyl) and -$S(O)_2$-$NH(alkyl)_2$

~~and pharmaceutically acceptable salts and prodrugs thereof~~.

2. (Original) The compound according to claim 1, wherein

X is -$C(R_4R_5)$-, -$N(R_4)$-, -C(=O)- or -O-;

Y is -$C(R_4R_5)$- or C=O;

Z is =O;

R_1 is -H;

R_2 is a substituted or unsubstituted alkyl group or a substituted or unsubstituted aryl group;

R_3 is a substituted or unsubstituted aryl group;

R_6 is independently selected from H, halo, -C_1-C_4 alkyl, -C_1-C_4 alkoxy, -C_1-C_4 haloalkyl, C_1-C_4 haloalkoxy, -C_1-C_4 acyl, amido, substituted amido, -NO_2, -CN,-OH, -NH_2 and substituted amino; and

each R_8 is independently –H or a substituted or unsubstituted aliphatic group.

3. (Original) The compound according to claim 2, wherein:

X is -CH_2-, -CH(lower alkyl)-, -NH-, -N(lower alkyl)-, -C(=O)- or -O-;

Y is C=O;

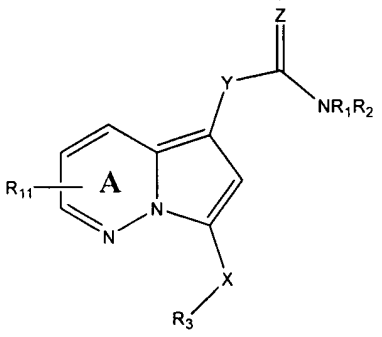
R_2 is an unsubstituted aryl group or an aryl group substituted with lower alkyl, amido, cyano or halo;

R_3 is a substituted or unsubstituted phenyl, pyridyl or thienyl group;

R_4 and R_5 are both H; and

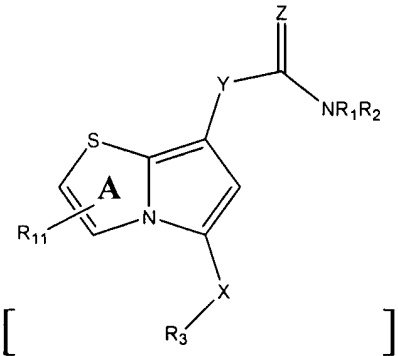
each R_8 is independently –H or a substituted or unsubstituted lower alkyl.

4. (Currently amended)) A compound ~~The compound according to claim 1, having~~ represented by the structure of Formula (Ia)~~, (Ib), (Ic), (Id), (Ie), (If) or (Ig)~~, or a pharmaceutically acceptable salt or prodrug thereof:

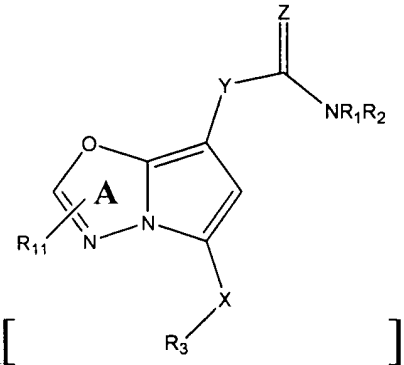


Formula (Ia)

[[ ]]

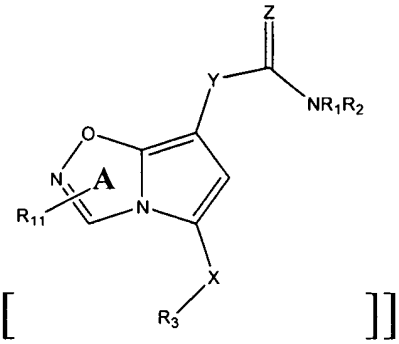


~~Formula (Ib)~~



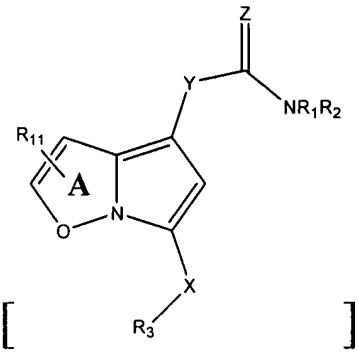
[[ ]]

~~Formula (Ic)~~



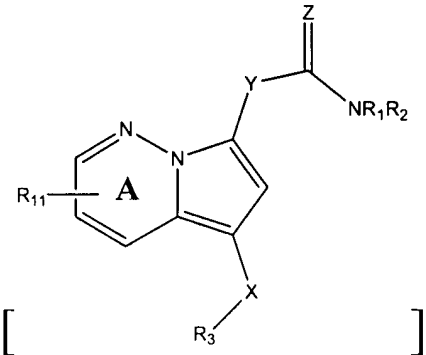
[[ ]]

~~Formula (Id)~~



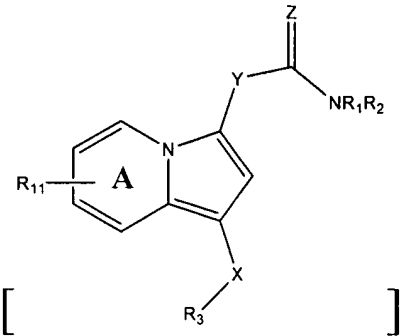
[[ ]]

~~Formula (Ie)~~



[[ ]]

~~Formula (If)~~



[[ ]]

~~Formula (Ig)~~

wherein

X is a covalent bond, -C(R_4R_5) -, -N(R_4)-, -O-, -S-, -S(O)-, -S$(O)_2$-, -C(=O)-, -C(=O)-N(R_4)-, or -N(R_4)-C(=O)-;

Y is -C(R_4R_5)-, -N(R_4)-, -O-, -S-, -S(O)-, -S$(O)_2$-, -C(=O)-, -C(=S)-, -C(=O)-N(R_4)-, -C(=N-OR_8)-, -C(=N-R_8)-, or -N(R_4)-C(=O)-;

Z is =O, =S, =N-OR_8 or =NR_8;

R_1 and R_2 are independently -H, an unsubstituted aliphatic group, a substituted aliphatic group, an unsubstituted non-aromatic heterocylic group, a substituted non-aromatic heterocylic group, an unsubstituted aryl group or a substituted aryl group; or alternatively, NR_1R_2, taken together, is a substituted or unsubstituted non-aromatic nitrogen-containing heterocyclic group or a substituted or unsubstituted nitrogen-containing heteroaryl group;

R_3 is a substituted or unsubstituted aryl group or a substituted or unsubstituted aliphatic group;

each R_4 and R_5 is independently -H or a substituted or unsubstituted aliphatic group;

each R_8 is independently –H, an unsubstituted aliphatic group, a substituted aliphatic group, an unsubstituted non-aromatic heterocylic group, a substituted non-aromatic heterocylic group, an unsubstituted aryl group, or a substituted aryl group;

[[each]] R_{11} is ~~independently selected from Ring A substituents (preferably,~~ selected from the group consisting of H, hydroxyl, cyano, nitro, halo, a substituted or unsubstituted amino group, a substituted or unsubstituted acyl group, a substituted or unsubstituted amido group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkoxy group, [[or]] and a substituted or unsubstituted aryl group;~~ and pharmaceutically acceptable salts and prodrugs thereof~~

substituents for Ring A, aliphatic, non-aromatic heterocyclic or aryl carbon atoms are independently selected from the group consisting of -OH, halogen, $-OR^a$, $-O-COR^a$, $-COR^a$, -CN, $-NO_2$, -COOH, $-SO_3H$, $-NH_2$, $-NHR^a$, $-N(R^aR^b)$, $-COOR^a$, -CHO, $-CONH_2$, $-CONHR^a$, $-CON(R^aR^b)$, $-NHCOR^a$, $-NRCOR^a$, $-NHCONH_2$, $-NHCONR^aH$, $-NHCON(R^aR^b)$, $-NR^cCONH_2$, $-NR^cCONR^aH$, $-NR^cCON(R^aR^b)$, $-C(=NH)-NH_2$, $-C(=NH)-NHR^a$, $-C(=NH)-N(R^aR^b)$, $-C(=NR^c)-NH_2$, $-C(=NR^c)-NHR^a$, $-C(=NR^c)-N(R^aR^b)$, $-NH-C(=NH)-NH_2$, $-NH-C(=NH)-NHR^a$, $-NH-C(=NH)-N(R^aR^b)$, $-NH-C(=NR^c)-NH_2$, $-NH-C(=NR^c)-NHR^a$, $-NH-C(=NR^c)-N(R^aR^b)$, $-NR^dH-C(=NH)-NH_2$, $-NR^d-C(=NH)-NHR^a$, $-NR^d-C(=NH)-N(R^aR^b)$, $-NR^d-C(=NR^c)-NH_2$, $-NR^d-C(=NR^c)-NHR^a$, $-NR^d-C(=NR^c)-N(R^aR^b)$, $-NHNH_2$, $-NHNHR^a$, $-NHR^aR^b$, $-SO_2NH_2$, $-SO_2NHR^a$, $-SO_2NR^aR^b$, $-CH=CHR^a$, $-CH=CR^aR^b$, $-CR^c=CR^aR^b$, $-CR^c=CHR^a$, $-CR^c=CR^aR^b$, $-CCR^a$, -SH, SR^a, $-SO_kR^a$ and $-NH-C(=NH)-NH_2$;

k is 0, 1 or 2;

R^a-R^d are each independently an aliphatic, benzyl, or aryl group, or $-NR^aR^d$, taken together, forms a non-aromatic heterocyclic group;

substituents for nitrogen atoms on Ring **A** are selected from the group consisting of aryl, -C_1-C_4 alkyl, -C_1-C_4 alkoxycarbonyl, -C_1-C_4 haloalkyl, -C_1-C_4 haloalkoxycarbonyl, -C_1-C_4 acyl and substituted amino;

substituents for heteroaryl ring nitrogen atoms having three covalent bonds to other heteroaryl ring atoms are selected from the group consisting of -OH and alkoxy; and

substituents for heteroaryl ring nitrogen atoms having two covalent bonds to other heteroaryl ring atoms are selected from the group consisting of substituted or unsubstituted alkyl, substituted or unsubstituted phenyl, -$S(O)_2$-(alkyl), -$S(O)_2$-NH(alkyl) and -$S(O)_2$-NH(alkyl)$_2$.

5. (Original) The compound according to claim 4, wherein

X is -$C(R_4R_5)$-, -$N(R_4)$-, -C(=O)- or -O-;

Y is -$C(R_4R_5)$- or C=O;

Z is =O;

R_1 is -H;

R_2 is a substituted or unsubstituted alkyl group or a substituted or unsubstituted aryl group;

R_3 is a substituted or unsubstituted aryl group; and

each R_8 is independently –H or a substituted or unsubstituted aliphatic group.

6. (Currently amended) The compound according to claim 5 ~~claim 3~~, wherein:

X is -CH_2-, -CH(lower alkyl)-, -NH-, -N(lower alkyl)-, -C(=O)- or -O-;

Y is C=O;

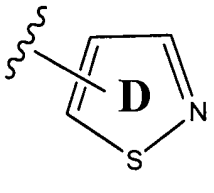
R_2 is an unsubstituted aryl group or an aryl group substituted with lower alkyl, amido, cyano or halo;

R_3 is a substituted or unsubstituted phenyl, pyridyl or thienyl group;

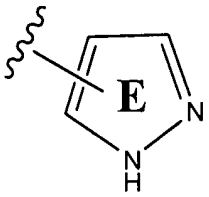
R_4 and R_5 are both H; and

each R_8 is independently –H or a substituted or unsubstituted lower alkyl.

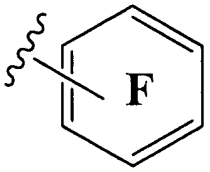
7. (Currently amended) The compound according to claim 1, wherein R_2 is represented by a structural formula selected from the group consisting of Formulas (II)-(XV):



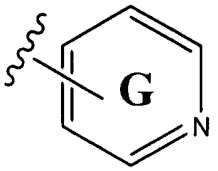
(II)



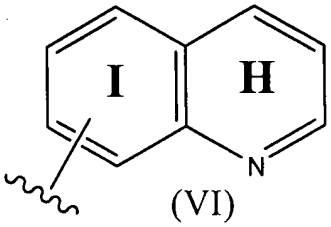
(III)



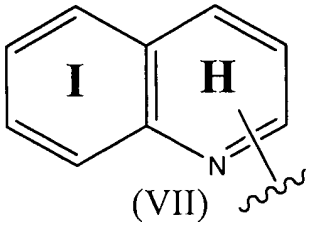
(IV)



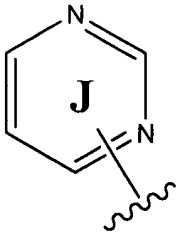
(V)



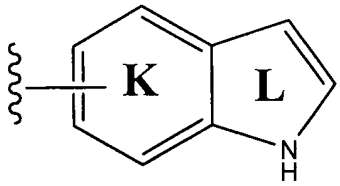
(VI)



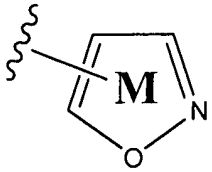
(VII)



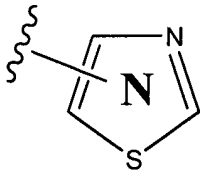
(VIII)



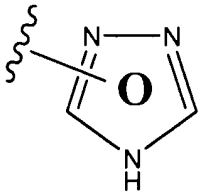
(IX)



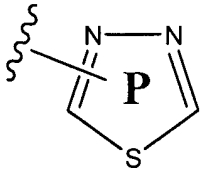
(X)



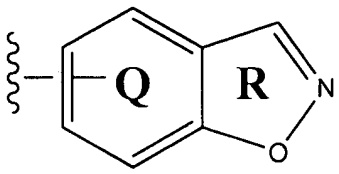
(XI)



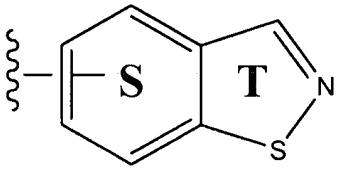
(XII)



(XIII)



(XIV)

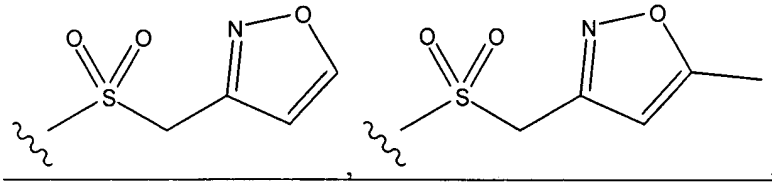


(XV)

wherein

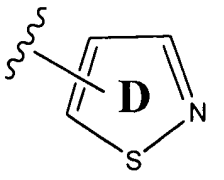
each of rings Rings **D-T** may be substituted or unsubstituted; and

substitutents for Rings **D-T** are each independently selected from the group consisting of C_1-C_4 alkyl, C_1-C_4 hydroxyalkyl, *N*-morpholino, pyrimidyl, C_1-C_4 alkyl substituted with pyrimidyl, -N(C_1-C_4 alkyl)$_2$, -C(O)NH_2, -C(O)NH(C_1-C_4 alkyl), C(O)N(C_1-C_4 alkyl)$_2$, -NHC(O)(C_1-C_4 alkyl), -NO_2, C_1-C_4 alkoxy, -C(O)O-CH_2CH_2-N(C_1-C_4 alkyl)$_2$,

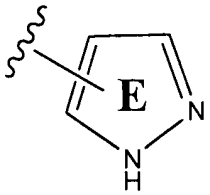


, -NH-(phenyl), -NH_2, -CH_2NH-C(O)-O-(C_1-C_4 alkyl), -CH_2NH_2, -Cl, -F, -C(O)-O-(C_1-C_4 alkyl), -C(O)-N-(C_1-C_4 alkyl), C_3-C_7 cycloalkyl, phenyl, -C(O)-*N*-morpholino, -S-(C_1-C_4 alkyl), -CN, furyl, -S(O)$_2$-(C_1-C_4 alkyl), -S(O)$_2$-NH_2, -S(O)$_2$-NH(C_1-C_4 alkyl) and -S(O)$_2$-N(C_1-C_4 alkyl)$_2$.

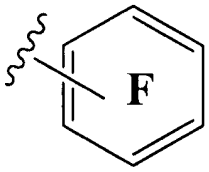
8. (Currently amended) The compound according to claim 4, wherein R_2 is represented by a structural formula selected from the group consisting of Formulas (II)-(XV):



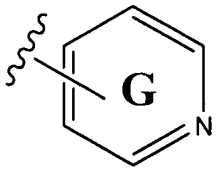
(II)



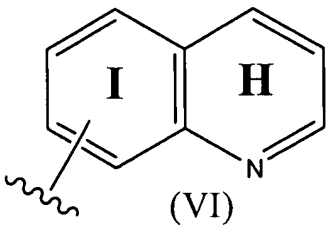
(III)



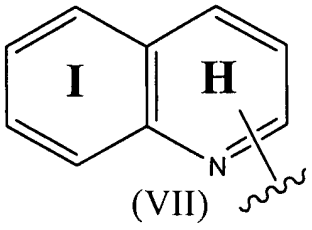
(IV)



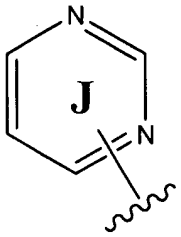
(V)



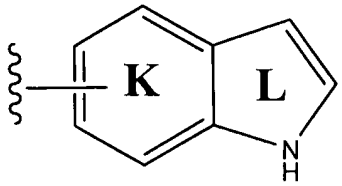
(VI)



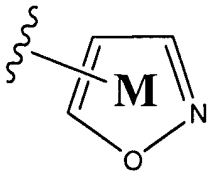
(VII)



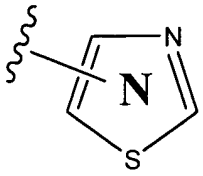
(VIII)



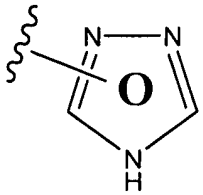
(IX)



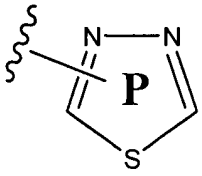
(X)



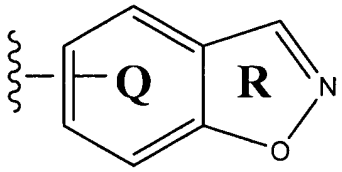
(XI)



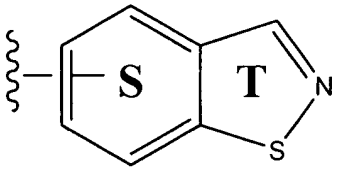
(XII)



(XIII)



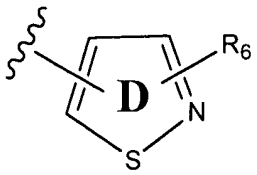
(XIV)



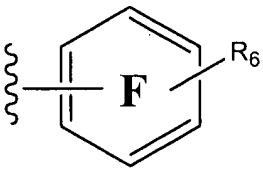
(XV)

wherein each of rings Rings **D-T** may be substituted or unsubstituted.

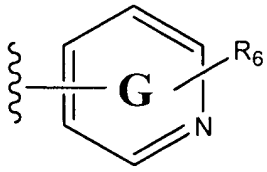
9. (Currently amended) The compound according to claim 7, wherein R_2 is represented by a structural formula selected from Formulas (XVI)-(XXI):



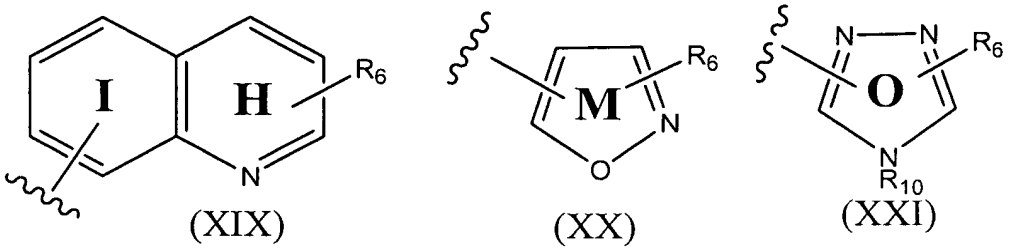
(XVI)



(XVII)



(XVIII)



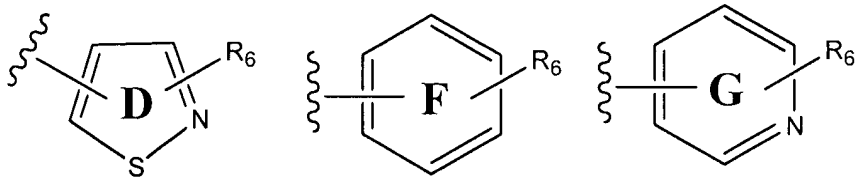
(XIX) (XX) (XXI)

wherein

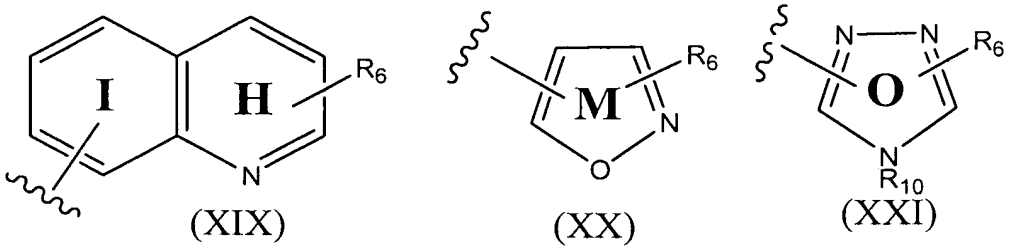
each R_6 is independently selected from the group consisting of H, hydroxyl, cyano, nitro, halo, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkoxy group, or a substituted or unsubstituted aryl group; and

R_{10} is -H or a substituted or unsubstituted alkyl group.

10. (Currently amended) The compound according to claim 8, wherein R_2 is represented by a structural formula selected from Formulas (XVI)-(XXI):



(XVI) (XVII) (XVIII)



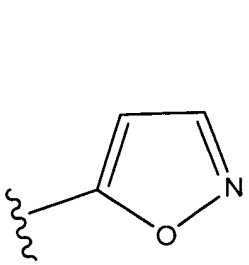
(XIX) (XX) (XXI)

wherein

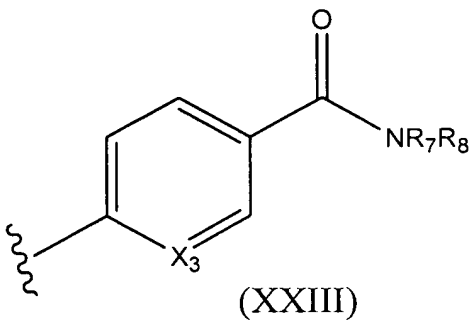
each R_6 is independently selected from the group consisting of H, hydroxyl, cyano, nitro, halo, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkoxy group, or a substituted or unsubstituted aryl group; and

R_{10} is -H or a substituted or unsubstituted alkyl group.

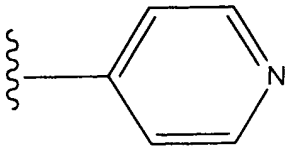
11. (Original) The compound according to claim 9, wherein R_2 is selected from Formulas (XXII)-(XXVII):



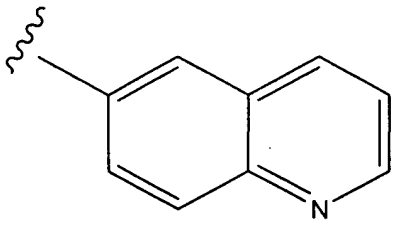
(XXII)



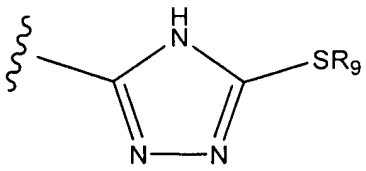
(XXIII)



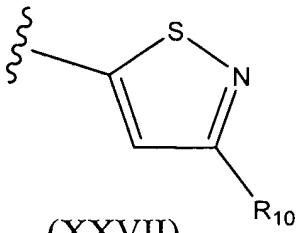
(XXIV)



(XXV)



(XXVI)



(XXVII)

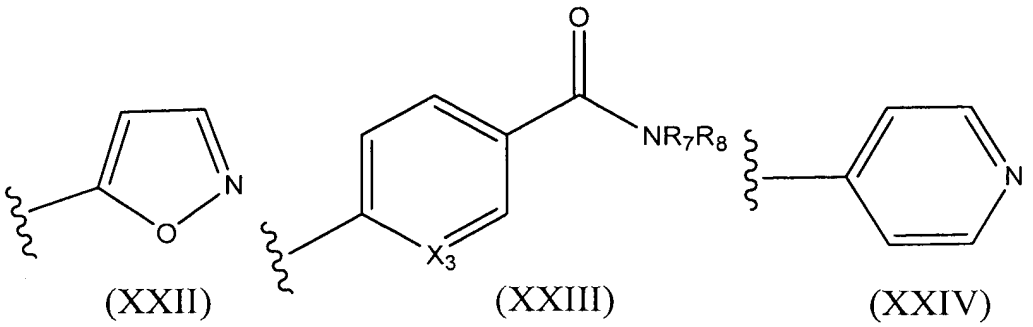
wherein X_3 is -CH- or -N-;

R_7 and R_8 are independently -H or an alkyl group or alternatively,-NR_7R_8, taken together, is a nitrogen-containing non-aromatic heterocyclic group;

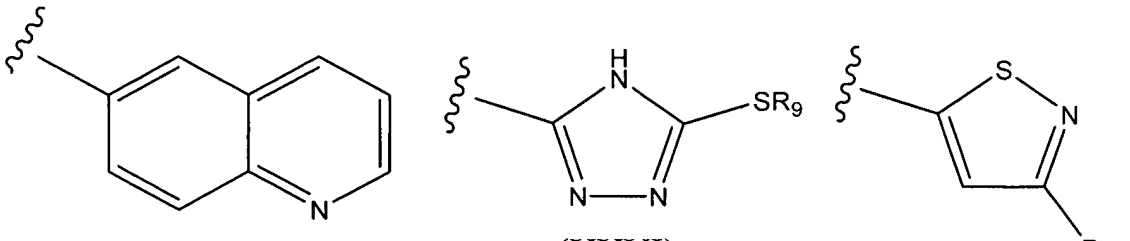
R_9 is an alkyl group; and

R_{10} is -H or an alkyl group.

12. (Original) The compound according to claim 10, wherein R_2 is selected from Formulas (XXII)-(XXVII):



(XXII) (XXIII) (XXIV)



(XXV) (XXVI) (XXVII)

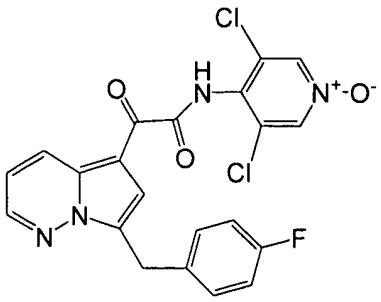
wherein X_3 is -CH- or -N-;

R_7 and R_8 are independently -H or an alkyl group or alternatively,-NR_7R_8, taken together, is a nitrogen-containing non-aromatic heterocyclic group;

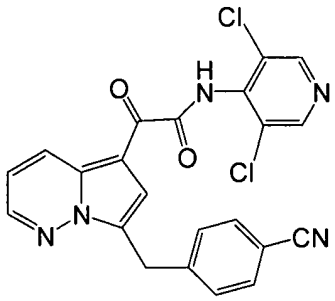
R_9 is an alkyl group; and

R_{10} is -H or an alkyl group.

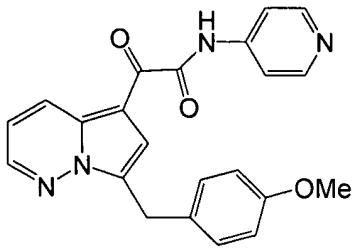
13. (Currently amended) A compound represented by a structural formula selected from the group consisting of Compounds ~~(I-1) through (I-14)~~ (I-1)-(I-7), or a pharmaceutically acceptable salt or prodrug thereof:



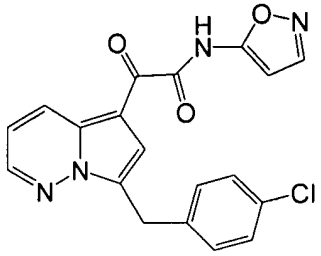
I-4



I-5



I-6 and



I-7.

14. (Original) A pharmaceutical composition comprising at least one compound according to claim 1 and a pharmaceutically acceptable carrier.

15. (Withdrawn) The pharmaceutical composition of claim 14, further comprising one or more additional therapeutic agents.

16. (Withdrawn) The pharmaceutical composition of claim 15, wherein the additional therapeutic agent is an agent against cancer agent, an autoimmune disease, an inflammatory disorder or pain.

17. (Withdrawn) A method for treating cancer, an inflammatory disorder or an autoimmune disease comprising the step of administering to a subject in need thereof an effective amount of the pharmaceutical composition according to claim 14.

18. (Withdrawn) A method for preventing cancer, an inflammatory disorder or an autoimmune disease comprising the step of administering to a subject in need thereof an effective amount of the pharmaceutical composition according to claim 14.

19. (Withdrawn) A method for preventing or treating a disorder involving PDE4 or elevated levels of cytokines comprising the step of administering to a subject in need thereof an effective amount of the pharmaceutical composition according to claim 14.

20. (Withdrawn) The method according to claim 19, wherein the disorder is characterized, mediated or exacerbated by overproduction or activity of TNFα.

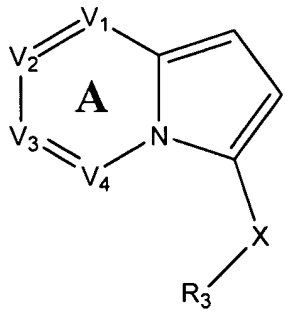
21. (Withdrawn) The method according to claim 19, wherein the disorder is characterized, mediated or exacerbated by overproduction or activity of PDE4.

22. (Withdrawn) A method of inhibiting TNFα or PDE4 in a cell comprising the step of contacting the cell with an effective amount of a compound according to claim 1.

23. (Withdrawn) A method for reducing TNFα levels in a subject comprising administering to the subject an effective amount of a compound according to claim 1.

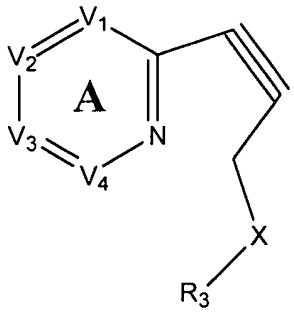
24. (Withdrawn) A method for suppressing inflammatory cell activation comprising the step of contacting the cell with an effective amount of a compound according to claim 1.

25. (Currently amended) A method of preparing a compound of Formula (I_{INT-A}):



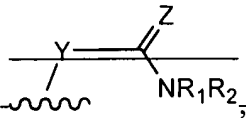
(I_{INT-A})

comprising the step of reacting a Cu^{I} salt with a precursor compound represented by Formula (I_{INT-B}):



(I_{INT-B})

wherein

~~V_1, V_2, V_3 and V_4 are independently CR_6 or N; or alternatively, V_1 and V_2 taken together or V_3 and V_4 taken together may be replaced with S, O, or NR_7 to form a fused 5-membered heterocyclic ring,~~ V_1, V_2 and V_3 are independently CR_6, and V_4 is N, and wherein two adjacent positions on Ring **A** may optionally be joined to create a fused aryl group~~, provided that when W_1 is~~ 

~~, V_1, V_2, V_3 and V_4 may not all be CR_6~~;

X is a covalent bond, $-C(R_4R_5)-$, $-N(R_4)-$, -O-, -S-, -S(O)-, $-S(O)_2-$, -C(=O)-, $-C(=O)-N(R_4)-$, or $-N(R_4)-C(=O)-$;

Y is $-C(R_4R_5)-$, $-N(R_4)-$, -O-, -S-, -S(O)-, $-S(O)_2-$, -C(=O)-, -C(=S)-, $-C(=O)-N(R_4)-$, $-C(=N-OR_8)-$, $-C(=N-R_8)-$, or $-N(R_4)-C(=O)-$;

Z is =O, =S, $=N-OR_8$ or $=NR_8$;

R_1 and R_2 are independently -H, an unsubstituted aliphatic group, a substituted aliphatic group, an unsubstituted non-aromatic heterocylic group, a substituted non-aromatic heterocylic group, an unsubstituted aryl group or a substituted aryl group; or alternatively, NR_1R_2, taken together, is a substituted or unsubstituted non-aromatic nitrogen-containing heterocyclic group or a substituted or unsubstituted nitrogen-containing heteroaryl group;

R_3 is a substituted or unsubstituted aryl group or a substituted or unsubstituted aliphatic group, provided that R_3 is not a substituted or unsubstituted alkyl group;

each R_4 and R_5 is independently -H or a substituted or unsubstituted aliphatic group;

each R_6 is independently –H or a substituent for a Ring **A** carbon atom ~~substituent~~;

~~each R_7 is independently -H or a heteroaryl ring nitrogen substituent; and~~

each R_8 is independently –H, an unsubstituted aliphatic group, a substituted aliphatic group, an unsubstituted non-aromatic heterocylic group, a substituted non-aromatic heterocylic group, an unsubstituted aryl group, or a substituted aryl group;

substituents for Ring A, aliphatic, non-aromatic heterocyclic or aryl carbon atoms are independently selected from the group consisting of -OH, halogen, $-OR^a$, $-O-COR^a$, $-COR^a$, -CN, $-NO_2$, -COOH, $-SO_3H$, $-NH_2$, $-NHR^a$, $-N(R^aR^b)$, $-COOR^a$, -CHO, $-CONH_2$, $-CONHR^a$, $-CON(R^aR^b)$, $-NHCOR^a$, $-NRCOR^a$, $-NHCONH_2$, $-NHCONR^aH$, $-NHCON(R^aR^b)$, $-NR^cCONH_2$, $-NR^cCONR^aH$, $-NR^cCON(R^aR^b)$, $-C(=NH)-NH_2$, $-C(=NH)-NHR^a$, $-C(=NH)-N(R^aR^b)$, $-C(=NR^c)-NH_2$, $-C(=NR^c)-NHR^a$, $-C(=NR^c)-N(R^aR^b)$, $-NH-C(=NH)-NH_2$, $-NH-C(=NH)-NHR^a$, $-NH-C(=NH)-N(R^aR^b)$, $-NH-C(=NR^c)-NH_2$, $-NH-C(=NR^c)-NHR^a$, $-NH-C(=NR^c)-N(R^aR^b)$, $-NR^dH-C(=NH)-NH_2$, $-NR^d-C(=NH)-NHR^a$, $-NR^d-C(=NH)-N(R^aR^b)$, $-NR^d-C(=NR^c)-NH_2$, $-NR^d-C(=NR^c)-NHR^a$, $-NR^d-C(=NR^c)-N(R^aR^b)$, $-NHNH_2$, $-NHNHR^a$, $-NHR^aR^b$,

$-SO_2NH_2$, $-SO_2NHR^a$, $-SO_2NR^aR^b$, $-CH=CHR^a$, $-CH=CR^aR^b$, $-CR^c=CR^aR^b$, $-CR^c=CHR^a$, $-CR^c=CR^aR^b$, $-CCR^a$, -SH, SR^a, $-SO_kR^a$ and $-NH-C(=NH)-NH_2$;

k is 0, 1 or 2;

R^a-R^d are each independently an aliphatic, benzyl, or aryl group, or $-NR^aR^d$, taken together, forms a non-aromatic heterocyclic group;

substituents for nitrogen atoms on Ring **A** are selected from the group consisting of aryl, $-C_1$-C_4 alkyl, $-C_1$-C_4 alkoxycarbonyl, $-C_1$-C_4 haloalkyl, $-C_1$-C_4 haloalkoxycarbonyl, $-C_1$-C_4 acyl and substituted amino;

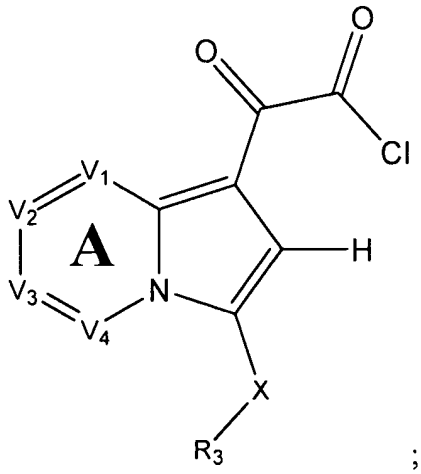
substituents for heteroaryl ring nitrogen atoms having three covalent bonds to other heteroaryl ring atoms are selected from the group consisting of -OH and alkoxy; and

substituents for heteroaryl ring nitrogen atoms having two covalent bonds to other heteroaryl ring atoms are selected from the group consisting of substituted or unsubstituted alkyl, substituted or unsubstituted phenyl, $-S(O)_2$-(alkyl), $-S(O)_2$-NH(alkyl) and $-S(O)_2$-NH(alkyl)$_2$

~~and pharmaceutically acceptable salts and prodrugs thereof~~.

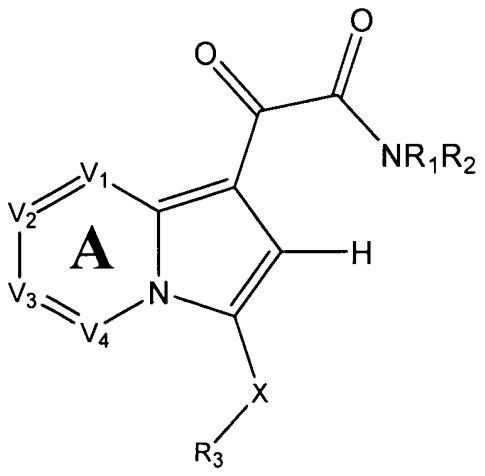
26. (Original) The method of claim 25, further comprising the steps of:

a) reacting the compound of Formula (I_{INT-A}) with oxalyl chloride to form a product compound represented by the following structural formula:

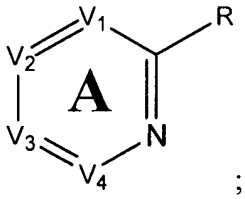


; and

b) amidating the product compound with NHR_1R_2 to form a second product compound represented by the following formula:



27. (Original) The method of Claim 25, wherein the compound of Formula (I_{INT-B}) is prepared by reacting a pyridine starting compound and an alkyne starting material in the presence of a catalytic amount of a palladium^{II} salt and a Cu^{I} salt, wherein the starting compound is represented by the following structural formula:

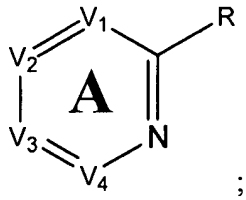


;

the alkyne starting material is represented by the following structural formula:

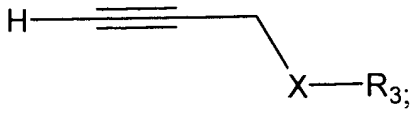
and R is -Br or -I.

28. (Original) The method of Claim 26, wherein the compound of Formula (I_{INT-B}) is prepared by reacting a pyridine starting compound and an alkyne starting material in the presence of a catalytic amount of a palladium^{II} salt and a Cu^{I} salt, wherein the starting compound is represented by the following structural formula:



;

the alkyne starting material is represented by the following structural formula:



and R is -Br or -I.